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ARITHMOGRAPHY.

BY THE SECRETARY.

ALTHOUGH particular rules and observations which are immediately applicable to one tongue or language are different from those of another, according to the mode or idiom of speech to which they are applied, yet as regards the general relation which things have to their modes, qualities, motions, or passions, all the languages in the world are exactly the same; for whatever is a substantive or verb in one language is the same in any other, although expressed in different forms or symbols.

If, therefore, instead of writing down the word *man*, which is only understood by those who are acquainted with the English language, we substitute a certain conventional sign, and which sign is set opposite to the word *man* in an English dictionary, to *homo* in a Latin dictionary, and to *άνθρωπος* in a Greek lexicon, it is evident that a person understanding the Latin tongue, but not being acquainted with either the English or Greek languages, yet wishing to discover the English or Greek words answering to *homo*, would be able to find them in both cases by looking for the conventional sign in the English and Greek arithmographical dictionaries respectively.

This, which is the case in regard to one word, would apply to all others, and by prefixing similar signs or figures to corresponding words in the dictionaries of different languages, a complete system of reference would be effected. Thus, an Englishman might correspond with a German, or a Welshman with an Italian, although neither understood the language of the other, nor were in possession of any other than his own arithmographical dictionary.

To effect so desirable an object as the construction and publication of an arithmographical dictionary for each of the European and other countries of the world where Arabic numerals are in daily use, would no doubt be attended with considerable difficulty; nevertheless, it is a subject worthy of consideration in so enlightened an age as the present.

Numeral characters are either letters or figures; the kinds now chiefly in use are the common and the Roman. The common character is that ordinarily termed Arabic, as supposed to have been invented by the Arab astronomers, though the Arabs themselves call it the Indian character, as if they had borrowed it from the people of India. The Arabic characters are ten in number, viz. 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, the last being called a cipher. The Arabic is used almost throughout Europe, and that on almost all occasions, whether for purposes of commerce, monetary affairs, mensuration, astronomy, &c.

On this account I have thought the Arabic numerals best suited for a complete system of arithmographical writing for the use of the people of Europe generally, and for those of other parts of the world where the Arabic numerals are in use.

I was led to the consideration of this subject in 1837 by my invention of the Hydraulic Telegraph, which, I need scarcely say, is now superseded by that beautiful contrivance, the electric telegraph of Messrs. Cooke and Wheatstone, the application of which for the purpose of transmitting signals I described in a paper lately read before this Society. In that paper, however, I did not enter into the arithmographical part of the subject, without which the telegraph would be of no use whatever.

Several systems of telegraphic signals for practical purposes have been published at different times, but, with the exception of a telegraphic dictionary printed at the expense of the East India Company, at a cost of something like 1000*l.*, I am not aware of any thing even approaching to a general arithmographical lexicon having been constructed until the one I have already mentioned, which was merely prepared for my own use, as I was unable to obtain a copy of that belonging to the East India Company.

This dictionary contains 12,200 words, including many terms of art, &c., and in an appendix there are 7326 names of persons, places, kingdoms, provinces, and principal rivers of the world. The appendix has a different mode of reference to the body of the dictionary, for the sake of simplicity and brevity, as I shall hereafter mention.

The principal parts of speech are nouns and verbs. A noun substantive I distinguish by the first figure being larger than the rest, as 3 in 3442, representing the word "carriage." A verb I distinguish by the last figure being larger than the rest, as 4 in 9034, "to ride." The cases of a noun I distinguish by prefixing a small figure to each, as —

¹ 7042	a man,	<i>homo.</i>	⁵ 7042	oh! man,	<i>homo.</i>
² 7042	of a man,	<i>hominis.</i>	⁶ 7042	{by, from, or}	<i>homine.</i>
³ 7042	to a man,	<i>homini.</i>		{with, a man,}	
⁴ 7042	a man,	<i>hominem.</i>			

In the plural, the cases are numbered in like manner: 7 for the nominative, 8 for the genitive, 9 for the dative, 10 for the accusative, 11 for the vocative, and 12 for the ablative.

This will also apply to adjectives, as :

7042 ²5841 ²4039.

"A man of good constitution."

In which the small figure ² is prefixed to 5841 (adj "good"), to
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shew its case and agreement with the genitive case of the noun substantive.

²4039, signifying "constitution."

The tenses of verbs I distinguish by small figures prefixed in order, as :

1 For the present tense, indicative mood.	5 Pluperfect.
2 Imperfect.	6 Future perfect.
3 Future imperfect.	7 For the present tense of the potential ; and so on.
4 Perfect.	

The persons I distinguish by placing small figures after the word, as :

Present Tense.

¹ 6391 ¹	<i>I love.</i>	¹ 6391 ⁴	<i>We love.</i>
¹ 6391 ²	<i>Thou lovest.</i>	¹ 6391 ⁵	<i>Ye love.</i>
¹ 6391 ³	<i>He loves.</i>	¹ 6391 ⁶	<i>They love.</i>

An example of tense and person :

⁴6391⁶ *They loved.*

Being the perfect or fourth tense, and the third person plural agreeing with the small number 6.

Passive verbs are distinguished simply by placing two similar figures representing the person after the number representing the words, as :

¹6391² *I am loved.*

In which the small 2's are affixed to 6391.

When names of persons or places are represented, a line is placed under the figures designating the particular name or place, as :

5124 "Pompey." | 4841 "Peterborough."

I have already stated that the names of persons and places are separated in the arithmographical dictionary from the body of the work for ease of reference.

In order to distinguish numbers from words, a line is drawn over the figures, which are to be read as numerals, as :

2000 7861 or, "two thousand people."

In writing or printing a long communication by the arithmographical system much less space is required than by the ordinary method. As an example, in the sentence "twenty-two gentlemen, &c." (as under), there are eighty-seven letters, while forty-seven figures answer the same purpose ; and in the sentence "the Duke

of Norfolk," &c. there are fifty letters, while the same is represented arithmographically by thirty-one figures only.

Examples :

"I am going to Marseilles."

¹5829¹ ³646.

"The Society of Arts of Scotland has a royal charter."

9865 81109 ²9352 6056³ 49127 43589.

"Twenty-two gentlemen were proposed as members of the Society of Arts on Wednesday evening, 22d February." (Eighty-seven letters.)

²² 75767 ⁴8464⁶ 77163 ²9865 ⁸1109 7554 11873.

5262 ²² 5509. (Forty-seven figures.)

"The Duke of Norfolk, one of the new members of the Society of Arts." (Fifty letters.)

¹4931 ²4322 ¹ ⁸7399 ⁸7163 ²9865 ⁸1109. (Thirty-one figures.)

PROSSER'S PROCESS OF MAKING BRICKS, TILES, AND
TESSERÆ, FROM A NEW MATERIAL.

BY J. M. BLASHFIELD, ESQ.

THE Roman tessellated pavements, described by Vitruvius (specimens of which may be seen in the British Museum), are composed of coloured marbles of various kinds, and of different degrees of compactness and durability. By Mr. Prosser's invention the want of uniformity in the shape and size of the tesserae employed by the Romans is entirely obviated.

Three years ago Mr. Prosser discovered that, by subjecting a mixture of pulverised felspar and fine clay to a strong pressure between steel dies, the powder was compressed into about one-fourth of its bulk, and became a compact body much harder and considerably less porous than the common porcelain.

The first application of this discovery was to the manufacture of buttons, which are much more durable and considerably less expensive than those in ordinary use.

One of the principal uses to which this invention is applied is that of constructing tesserae for pavements, and which was suggested by Mr. Blashfield, who, in conjunction with Messrs. Wyatt, Parker, and Co., has already carried out the invention to a considerable extent in the construction of tesserae of various shapes, sizes, and colours, which being made in steel dies of exactly simi-